General Surgery

SSG CATES

Terminal Learning Objective

CONDITION: Given the appropriate information

ACTION: Identify definitions, rationales, supplies, and equipment required for general surgery.

STANDARD: IAW cited references.

Definition of General Surgery

Condition: Given the appropriate information

Action: Identify the definitions, relevant anatomy of general surgery

Standard: IAW Fairchild and Berry and Kohn's.

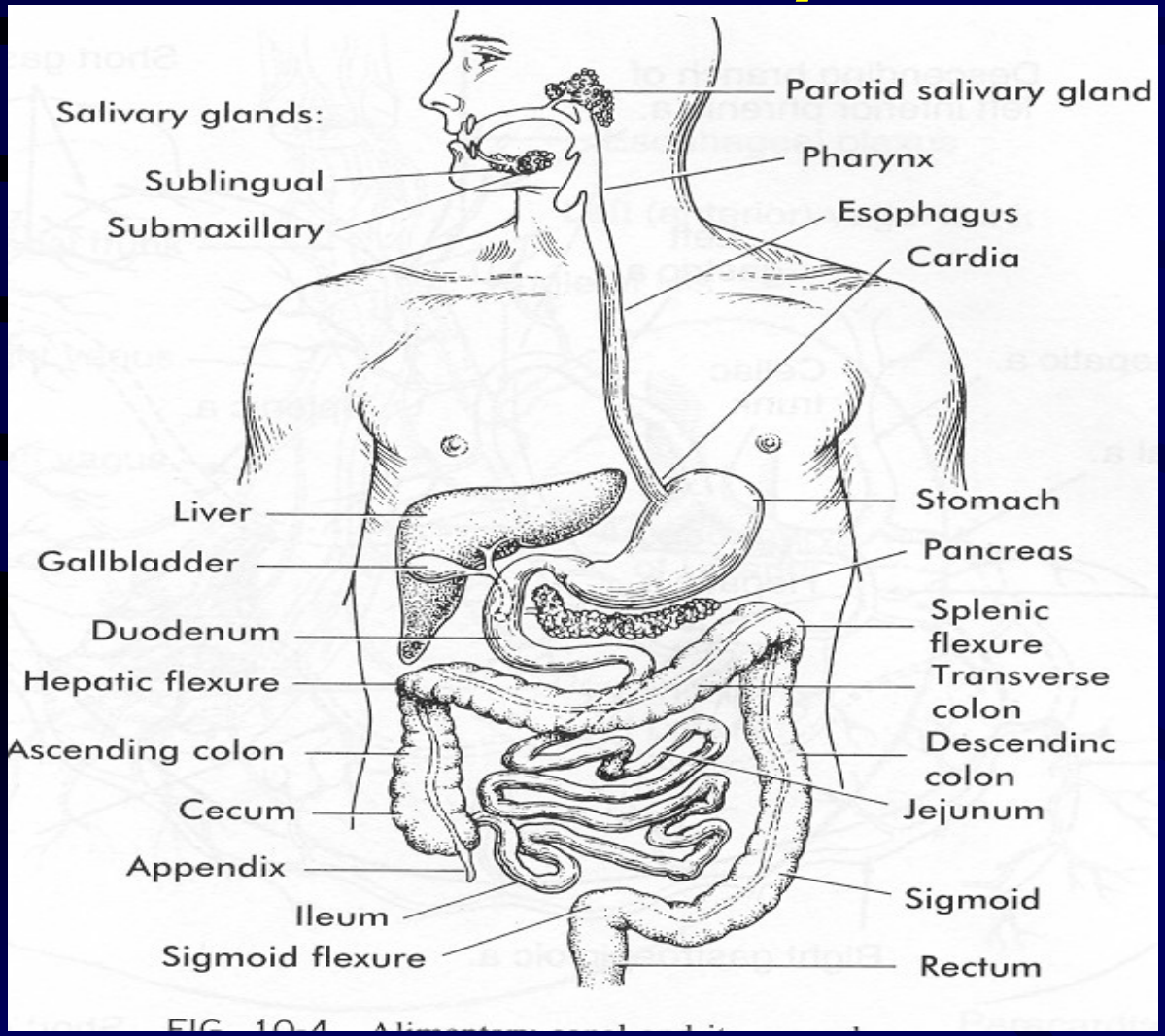
Definitions

- The core of knowledge common to all Surgical specialties.
- General surgery includes procedures done on the:
  - Gastrointestinal tract.
  - Biliary system.
  - Hernias in the abdominal wall.
  - Breast-- non cosmetic surgeries.
  - Thyroid gland.

Anatomy of the abdomen/ GI tract.

- Esophagus.
- Stomach.
- Liver.
- Gallbladder.
- Pancreas.
- Small Intestines.
- Large Intestines.
- Rectum.

Anatomy of the Abdomen/ GI Tract.



Inguinal Herniorrhaphy.

Condition: Given the appropriate information

Action: Identify the definitions, rationale, relevant anatomy, considerations, and procedural overview for inguinal herniorrhapy

Standard: IAW Fairchild and Berry and Kohn's.

Inguinal Herniorrhapy

- A protrusion of the peritoneum into the inguinal region. May or may not contain abdominal viscera.
- Indirect Hernia--- A congenital defect in the internal abdominal ring.
- Direct Hernia--- Usually results from stress, (I.e. from trying to lift something too heavy by yourself).

Inguinal Herniorrhaphy

- Rationale - To strengthen the abdominal layers in the groin and close the defect to prevent strangulation or incarceration of the bowel.
  - Incarceration-- A portion of the bowel may slip out through the weakened area and become trapped or incarcerated.
  - Strangulation-- Incarcerated bowel is constricted and is cut off from its blood supply, which may lead to necrosis of the bowel.

Relevant Anatomy

- External oblique-- muscle slanting diagonal.
- Internal oblique.
- Transversalis fascia-- major supporting structure of the posterior floor.
- Spermatic cord.
- Epigastric vessels.
- Inguinal ligament.
- Rectus abdomis muscle - straight up and down.

Considerations for the procedure

- Anesthesia- usually spinal or general
  Local may be used for some patients.
- Position- supine.
- Skin prep- abdominal prep.
- Draping- Standard abdominal draping.
- Instrumentation- Basic (minor) set.

Additional Supplies

- Penrose drain (1/4 in.) for retraction of spermatic cord.
- Dissector sponges (e.g., kitners).
- Synthetic mesh (optional) for extra strength in the repair of recurrent hernias.
- Medications - Local anesthesia if done under local

Procedural Overview

- Through a lower oblique incision on the appropriate side the surgeon works down the layers to gain access to the hernia.
- The hernia is identified and repaired, using suture of the surgeon’s choice.
- The surgeon will then close the wound in individual layers.

Exploratory Laparotomy

Condition: Given the appropriate information

Action: Identify the rationale, relevant anatomy, considerations, and procedural overview for an exploratory laparotomy.

Standard: IAW Fairchild and Berry and Kohn's.

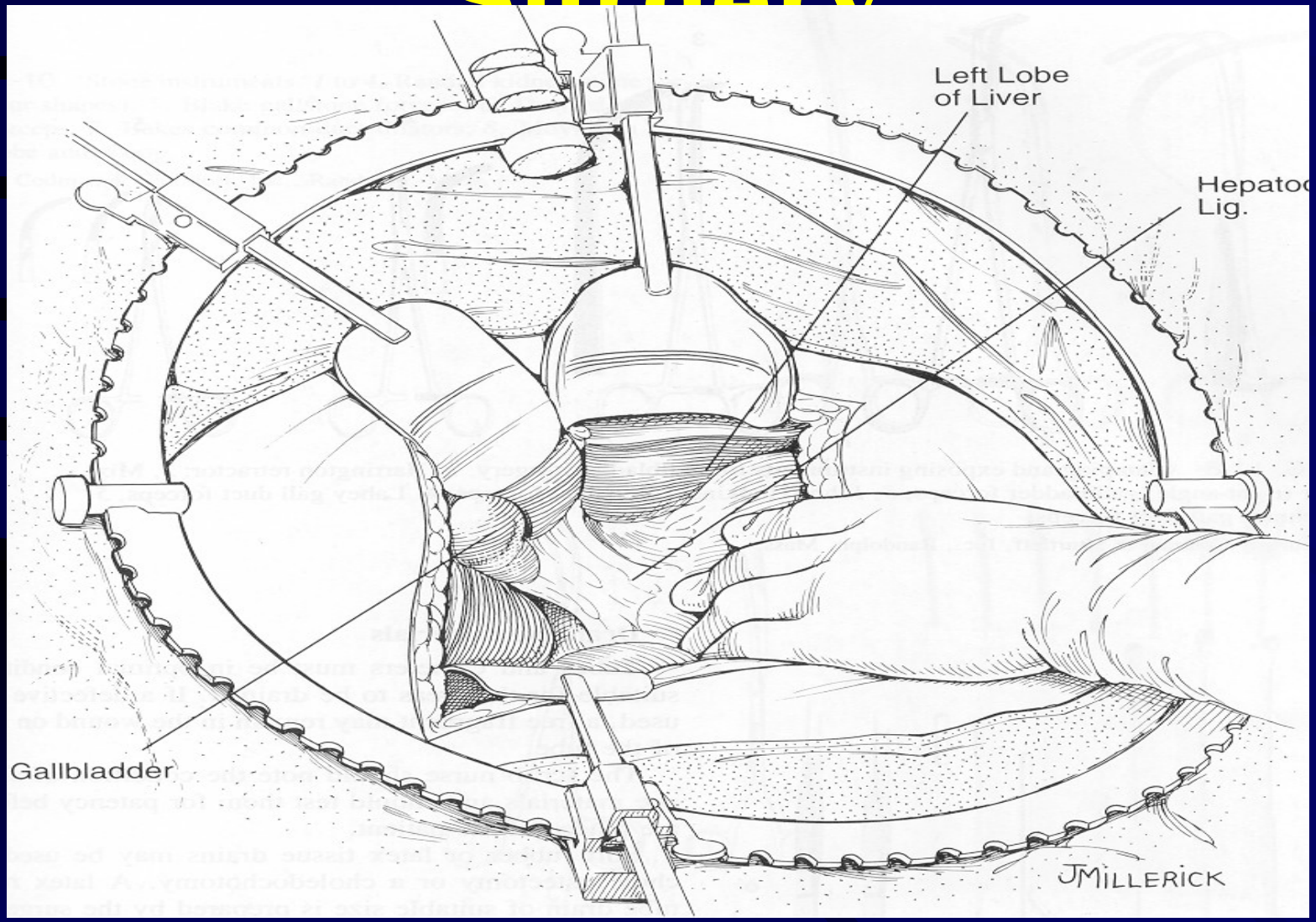
Relevant Anatomy

- Skin.
- Subcutaneous fat.
- Anterior Fascia.
- Muscle.
- Peritoneum.
- Viscera.

Considerations for Surgery

- Anesthesia - general.
- Position - supine.
- Skin prep - Abdominal prep.
- Draping - Standard abdominal draping.
- Instrumentation - Major basic.
  - Hemoclip/ surgiclip appliers (various sizes).
  - Special instrument sets may be required for some procedures such as an Intestinal set, Long instrument set, Bookwalter retractor, etc.

Considerations for Surgery



Procedural Overview

- Incision - midline or paramedian depending on suspected pathology.
- Once the abdomen is opened, the abdominal contents are explored.
- The procedure performed will depend on the nature of the pathology, (e.g. appendectomy, Bowel resection, gall bladder removal, etc.).

Procedural Overview

- Instruments that come in contact inside the GI tract should be isolated and not used again. For some procedures a new set up, drapes, gowns and gloves may be needed when it is time to close the wound.
- Wound will be irrigated with either warm saline or saline with antibiotics before closure to reduce risk of infection.
- Layers are closed by various sutures, skin staples are often used on the skin.

Breast Procedures

Condition: given the appropriate information

Action: Identify the rationale, relevant anatomy, considerations, and procedural overview for a breast procedure.

Standard: IAW Fairchild and Berry and Kohn's.

Rationale

- Diagnosis and treatment usually for breast cancer or benign breast disease (fibrocystic). Extent of disease determines which procedures will be done.
- Relevant Anatomy
  - Mammary gland.
  - Subcutaneous fat.
  - Deep fascia.
  - Nipple.

Considerations for the procedure

- Anesthesia - local or general.
  - Local for biopsy.
  - General for mastectomy.
- Position - Supine, with arms extended on arm boards, affected side may be elevated by towels or sandbags.
- Skin Prep - Breast removal - may or may not include the arm.

Considerations for the procedure

- Draping - Affected breast exposed – using laparotomy pack.
- Extra drape sheets.
- Extra hand towels.
- Impervious stockinette (optional). If surgeon wants to include arm in the sterile field.

Instrumentation

- Minor set for breast biopsy.
- Major basic for mastectomy.
- Drain of surgeons choice (e.g. Penrose,
  hemovac, Jackson-Pratt, etc.).

Breast Procedures

- Breast biopsy-- Removal of suspected tissue to determine diagnosis.
- Simple Mastectomy - Excision of the total breast without lymph node dissection.
- Modified radical Mastectomy - Excision of the breast, to include axillary lymph nodes, and subcutaneous fat.
- Radical Mastectomy - Excision of the breast, to include lymph nodes, pectoral muscles, and all adjacent tissues.

Procedural Overview for Breast biopsy

- The surgeon will incise over the lesion (possibly a circumferential incision).
- With the incision deepened and the underlying tissue exposed, the mass is dissected free and removed.
- After dissection and hemostasis is obtained the tissue is approximated with sutures. (a drain may be used).

Hemorrhoidectomy

Condition: Given the appropriate information

Action: Identify the rationale, relevant anatomy, considerations, and procedural overview for a hemorrhoidectomy

Standard: IAW Fairchild and Berry and Kohn's.

Definitions

Hemorrhoidectomy - surgical excision and ligation of varicose veins of the anus and rectum.

Rationale - veins are excised and ligated to control bleeding, relive pressure and pain.

Relevant Anatomy

- Anus.
- Rectum.
- Sigmoid colon.

Considerations for the procedure

- Anesthesia - local, spinal, or general.
- Position - Usually jackknife, may use lithotomy, Buttocks will be held apart with tape attached to the O.R. table.
- Skin Prep - Minimal prep is performed.

Considerations for the procedure

- Draping - Lithotomy draping or, if jackknife will be similar to draping for laparotomy.

- Instrumentation.

  - Rectal Set.

  - Sigmoidoscopy instruments (optional).

Procedure Overview

- The surgeon will dilate the rectum and grasp the hemorrhoid.
- The hemorrhoid is excised by scalpel, cautery, or laser.
- A compression dressing may be inserted after completion of the case.

Possible complications of general surgery procedures

Condition: Given the appropriate information

Action: Identify the possible complications of general surgery procedures

Standard: IAW Fairchild and Berry and Kohn's.

Complications of general surgery procedures

- **Pneumonia** - Abdominal incisions are painful. Patients may avoid coughing or moving which predisposes them to pneumonia.
- **Wound infection** - may occur at surgery due to break in technique or due to spillage of intestinal contents, or many occur post operatively delaying wound healing.

Complications of general surgery procedures

Formation of adhesions - Fibrous bands that may cause loops of bowel to stick together or become constricted. May cause pain or lead to bowel obstruction.

Post - operative ileus - Intestinal obstruction related to anesthesia and handling of the bowel during surgery.

Complications of general surgery procedures

Foreign bodies (i.e. glove powder, lint from sponges) in the peritoneal cavity can cause granulomas.

Damage to spermatic cord and blood supply to the testis during hernia repair.

Excessive bleeding.

Excision of too much skin and injury to sphincter during hemorrhoidectomy.

QUESTIONS